

10/517224

DT05 Rec'd PCT/PTO 0 8 DEC 2004

PATENT

Attorney Docket No. 10354\*1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

|                               |   |                            |
|-------------------------------|---|----------------------------|
| In re Application of:         | ) |                            |
|                               | ) |                            |
| John R. HUMPHREY et al.       | ) |                            |
|                               | ) | Group Art Unit: Unassigned |
| Serial No.: Unassigned        | ) |                            |
|                               | ) | Examiner: Unassigned       |
| Filed: December 8, 2004       | ) |                            |
|                               | ) |                            |
| For: HARDWARE IMPLEMENTATION) |   |                            |
| OF THE PSEUDO-SPECTRAL )      |   |                            |
| TIME-DOMAIN METHOD )          |   |                            |

**Mail Stop PCT**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**

Sir:

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)**

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicants bring to the attention of the Examiner the documents listed on the attached PTO-1449. This Information Disclosure Statement is being filed concurrently with the above-referenced application. Copies of the listed documents are provided herewith. Applicants respectfully request that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached PTO-1449.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and Applicants determine that the cited documents do not constitute

"prior art" under United States law, Applicants reserve the right to present to the office the relevant facts and law regarding the appropriate status of such documents. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 03-2775.

Respectfully submitted,

CONNOLLY BOVE LODGE & HUTZ LLP

Date: December 8, 2004

By: 

James M. Olsen  
Reg. No. 40,408

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| <b>Substitute for form 1449A/PTO</b><br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |   |    |   | <b>Complete if Known</b> |                         |
|   |   |    |   | Application Number       | Not Yet Assigned        |
|   |   |    |   | Filing Date              | December 8, 2004        |
|   |   |    |   | First Named Inventor     | John R. HUMPHREY et al. |
|   |   |    |   | Group Art Unit           | Not Yet Assigned        |
|   |   |    |   | Examiner Name            | Not Yet Assigned        |
| Sheet   | 1 | of | 2 | Attorney Docket Number   | 10354*1                 |

| U.S. PATENT DOCUMENTS |                          |  |                                |  |  |
|-----------------------|--------------------------|--|--------------------------------|--|--|
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or Applicant<br>of Cited Document | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear |
|                       |                          | Number-Kind Code <sup>2</sup> (if known) |                                |  |  |
|                       |                          | 5,680,515                                | 10-21-1997                     | Barhen et al.                                      |  |
|                       |                          | 6,377,041                                | 04-23-2002                     | Jones, Jr. et al.                                  |  |
|                       |                          | 6,507,804                                | 01-14-2003                     | Hala et al.  |  |
|                       |                          | 6,512,789                                | 01-28-2003                     | Mirfakhraei  |  |
|                       |                          | 6,584,138                                | 06-24-2003                     | Neubauer et al.                                    |  |

| FOREIGN PATENT DOCUMENTS |                          |   |                                |  |  |   |
|--------------------------|--------------------------|---|--------------------------------|--|--|---|
| Examiner<br>Initials*    | Cite<br>No. <sup>1</sup> | Foreign Patent Document   | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant Figures<br>Appear | T |
|                          |                          | Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known) |                                |  |  |   |
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See attached Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                          |  |  |
|---|--------------------------|--|--|
| Examiner<br>Initials*                             | Cite<br>No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published. |  |
|   |                          | A. Tafllove, "Computer Electrodynamics: The Finite-Difference Time-Domain Method," pp. 68-70 (May 1995).   |  |
|   |                          | Q.H. Liu, "The PSTD Algorithm: A Time-Domain Method Requiring Only Two Cells Per Wavelength," <i>Microwave and Optical Technology Letters</i> , vol. 15, no. 3 (June 1997).  |  |
|   |                          | Q.H. Liu, "PML and PSTD Algorithm for Arbitrary Lossy Anisotropic Media," <i>IEEE Microwave and Guided Wave Letters</i> , vol. 9, no. 2 (Feb. 1999).   |  |
|   |                          | Q.H. Liu, "Large-Scale Simulations of Electromagnetic and Acoustic Measurements Using the Pseudospectral Time-Domain (PSTD) Algorithm," <i>IEEE Transactions on Geoscience and Remote Sensing</i> , vol. 37, no. 2 (March 1999).                               |  |
|   |                          | Y.F. Leung et al., "Pseudospectral Time-Domain (PSTD) Method With Unsplit-Field PML," <i>Microwave and Optical Technology Letters</i> , vol. 22, no. 4 (Aug. 1999).  |  |
|   |                          | Q. Li et al., "Comparison Study Of The PSTD And FDTD Methods For Scattering Analysis,"   |  |

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| Sheet   | 2 | of | 2 | Attorney Docket Number   | 10354*1                 |

|  |  |   |  |
|--|--|---|--|
|  |  | <i>Microwave and Optical Technology Letters</i> , vol. 25, no. 3 (May 2000).  |  |
|  |  | W.K. Leung et al., "Transformed-Space Nonuniform Pseudospectral Time-Domain Algorithm,"<br><i>Microwave and Optical Technology Letters</i> , vol. 28, no. 6 (March 2001). |  |

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